Advances in Genitourinary Surgery

Highlights From the 114th Meeting of the American Association of Genitourinary Surgeons
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Thirty-two outstanding abstracts were presented and discussed at the annual meeting of the American Association of Genitourinary Surgeons. Presentations of greatest clinical interest are highlighted, along with a summary of the discussion.

Cavermap and Radical Prostatectomy

Patrick C. Walsh, MD, of Johns Hopkins University in Baltimore, presented a multi-institutional study evaluating the Cavermap™, a surgical aide designed to assist in the intraoperative localization of the cavernous nerve. Fifty-two potent men under the age of 60, with a sexual partner, a Gleason score of 7 or lower, and a prostate-specific antigen (PSA) level of less than 10 ng/mL, underwent nerve-sparing radical prostatectomy by experienced surgeons (William J. Catalona, Washington University School of Medicine; Herbert Lepor, New York University School of Medicine; Robert P. Meyers, Mayo Medical School; and Mitchell S. Steiner, University of Tennessee). Erectile function was evaluated preoperatively and at 3, 6, and 12 months postoperatively using the International Index Erectile Function questionnaire. Eighty-eight percent of the men underwent bilateral nerve-sparing procedures. Potency was defined as the ability to engage in acceptable sexual intercourse at least 50% of the time. Postoperatively, 33%, 66%, and 95% of the men were potent at 3, 6, and 12 months, respectively. The study demonstrated that in younger, sexually active men undergoing bilateral nerve-sparing radical prostatectomy, preservation of potency can be achieved in the overwhelming majority of cases.

The primary limitation of the Cavermap was its poor specificity. This precludes the use of this device for making intraoperative decisions regarding the precise location of the neurovascular bundle. The study was not designed to determine whether the Cavermap improved potency rates.

Discussion: The majority of the discussants expressed their disappointment with the Cavermap and felt the device was not a useful surgical tool.

Nerve Grafting and Radical Prostatectomy

Peter T. Scardino, MD, of Memorial Sloan-Kettering Cancer Center in New York, discussed the use of bilateral sural nerve grafts in men undergoing bilateral resection of the neurovascular bundles. The 12 men who underwent the procedure have been followed for a minimum of 12 months. Four (33%) of the 12 men recovered erections sufficient for intercourse. A control group was identified who represented men who were undergoing radical prostatectomy with bilateral resection of the neurovascular bundles but who declined a nerve graft. None of the 14 controls recovered erectile function. Dr Scardino thought that this preliminary study validated the technique of nerve grafting during radical prostatectomy.

Discussion: The majority of the discussants were skeptical of the role of nerve grafting in men undergoing non–nerve-sparing radical prostatectomy. The men who underwent bilateral nerve-sparing prostatectomy, all of whom had high-grade and high-stage disease, are unlikely to be cured of their cancers. In these cases, hormonal or adjuvant radiation therapy will have a negative impact on potency. The control group comprised men who declined the nerve graft procedure, which constitutes a significant selection bias for men less motivated about their sexual outcome. The mean age of the control group was also 5 years older, which was thought to be a clinically relevant difference between the control and grafted groups. Determination of the ultimate role of nerve grafting requires additional clinical experiences.

Erythropoietin: A Blood Management Strategy for Radical Prostatectomy

Herbert Lepor, MD, of New York University School of Medicine, examined the effectiveness, safety, and cost of

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Main Points

- In the majority of young, sexually active men who undergo bilateral nerve-sparing prostatectomy, potency can be preserved.
- Cavermap™ has not proved helpful in localization of the cavernous nerves.
- Although nerve grafting during radical prostatectomy is feasible, its role has yet to be defined.
- Overall quality of life following radical prostatectomy and radiation therapy is comparable.
- Cancer-specific mortality is more favorable following radical prostatectomy, compared with radiation therapy.
- Use of epoetin alfa as a blood management strategy in men undergoing radical prostatectomy is safe and can be cost-effective.
- Nephron-sparing surgery should be considered in patients with a single renal tumor smaller than 4 cm and a normal contralateral kidney.
- Use of prostate-specific antigen screening has increased the detection of lower-stage tumors and has decreased mortality rates from prostate cancer.
- Use of an orthotopic neobladder for women with bladder cancer has produced good outcomes.
- A more extensive pelvic lymphadenectomy in men with clinically localized prostate cancer identifies more positive nodes.

recombinant erythropoietin (epoetin alfa) as a blood management strategy for men undergoing radical retropubic prostatectomy. A randomized, single-blind study demonstrated that transfusion rates were equivalent for men receiving a conservative dosing regimen of epoetin alfa versus autologous blood donation. The conservative dosing regimen (600 IU/kg on preoperative days 14 and 7, provided the hematocrit was 46% or lower) was selected because of the potential risk for thromboembolic events. Because the conservative dosing regimen was not associated with thromboembolic events, a more aggressive dosing regimen was instituted (600 IU/kg on preoperative days 14 and 7, independent of hematocrit). In a group of 283 men managed with this aggressive dosing regimen, no thromboembolic adverse events were observed.

These experiences provide compelling data supporting the safety of epoetin alfa in men undergoing radical prostatectomy. Overall, the mean increase in the hematocrit was 2.9 percentage points, which is equivalent to a unit of blood. This increase is greater than the calculated 1.6 percentage-point increase in hematocrit elicited by 3 units of autologous blood. Sixty percent of men had more than a 2-percentage–point increase in hematocrit.

The Medicare reimbursement rate for epoetin alfa is $11.40 per 1000 IU. Therefore, the cost benefit of epoetin alfa is highly clinically relevant. The effectiveness of high (600 IU/kg) and low (300 IU/kg) dosing regimens (preoperative days 14 and 7) was compared. The mean percentage-point increases in the hematocrit for the high- and low-dose groups were 4.8 and 3.5, respectively. The overall costs per 1-percentage–point increases in the hematocrit in the high- and low-dose groups were $249 and $191, respectively. Interestingly, the cost-per-unit increase in the hematocrit level for men undergoing autologous blood donation was $357. The transfusion rates in the high- and low-dose groups were 5.7% and 4.5%, respectively.

Discussion: The discussion focused primarily on the theoretical risk of thromboembolic events. Dr Lepor emphasized that the absence of a single thromboembolic event in more than 500 men exposed to epoetin alfa supports the safety of this blood management strategy in euvolemic men undergoing radical prostatectomy. Several discussants indicated that their transfusion rates were less than 5% without any blood management strategy. The decision to implement a blood management strategy ultimately should depend on the transfusion rate of the surgeon and the desire of the patient to minimize exposure to allogeneic blood. Another potentially significant advantage of epoetin alfa is the ability to discharge the patient with a higher hematocrit, which would likely improve activity levels in the immediate postoperative recovery period.

Nephron-Sparing Renal Surgery

Andrew Novick, MD, of the Cleveland Clinic reviewed a study of 107 patients with localized sporadic renal cell carcinoma undergoing nephron-sparing surgery. All patients were followed for 10 years or longer, or until death. The cancer-specific survival was 88% and 73% at 5 and 10 years, respectively. Cancer-specific survival approached 100% in men with tumors smaller than 4 cm. Overall, 10% of men developed a local tumor recurrence. Tumor recurrences were not observed in patients with tumors smaller than 4 cm.

Discussion: The discussants validated the observations of Dr Novick. A consensus existed for the role of elective nephron-sparing surgery in patients with a single renal tumor smaller than 4 cm and a normal contralateral kidney.

Quality of Life Following Treatment for Localized Prostate Cancer

Peter C. Albertsen, MD, of the University of Connecticut School of Medicine in Farmington, presented the results of a prospective, population-based analysis of men in whom prostate cancer was newly diagnosed. Subjects were a random sampling of 5667 men, who were registered in 6 participating regions that were monitored by the

National Cancer Institute's Surveillance, Epidemiology, and End Results program, and who received a diagnosis of prostate cancer between October 1, 1994, and October 31, 1995. These subjects were requested to complete a survey concerning health-related quality of life, at 6, 12, 24, and 60 months postoperatively. The survey focused on bowel, bladder, and sexual function. Of the men between ages 55 and 74, 961 underwent surgery and 373 received radiation therapy.

Overall quality of life (captured by the SF36 index) and erectile function were not significantly different between the 2 treatment groups. There was a greater level of incontinence in the men undergoing radical prostatectomy and a greater incidence of bowel problems in the men undergoing radiation therapy. The stricture rates in the surgical and radiation groups were 15% and 6%, respectively.

Discussion: Several discussants expressed concern regarding the high incidence of strictures in the surgical group. It was emphasized that this represents the community standard. The outcomes associated with surgery are likely to be significantly better in the hands of experienced surgeons. A comment was made about overall urinary function, which was not captured by the outcomes analysis. Radical prostatectomy has been shown to improve quality of life by improving lower urinary tract symptoms (LUTS). It is thought that radiation therapy aggravates or causes LUTS. Therefore, an outcomes analysis limited to continence is not adequate.

Screening for Prostate Cancer

George Bartsch, MD, of the University of Innsbruck, Austria, presented a report of PSA mass screening for prostate cancer that was launched in the region of Tyrol, Austria, in 1993. In 1998, approximately two thirds of men between ages 45 and 74 underwent PSA screening in this area. As expected, there was a significant migration to lower-stage disease and an increase in the number of organ-confined tumors as a result of the screening program. Interestingly, the percentage of clinically insignificant tumors in the group screened did not increase. Mortality from prostate cancer decreased since initiating the PSA screening program.

Discussion: Obviously, the urologists were very enthusiastic about a study showing the value of PSA screening. A study recently reported in the journal *Epidemiology* showed a decrease in prostate cancer mortality rates in the United States for the first time in decades, further supporting the favorable impact of PSA screening.

Survival Following Treatment for Localized Prostate Cancer

Mani Menon, MD, of Henry Ford Hospital in Detroit, reported on the long-term outcomes in men below the age of 76 who received a diagnosis of clinically localized prostate cancer between 1980 and 1997. Of these men, 1182 were treated conservatively, 1292 with irradiation, and 1179 with radical prostatectomy. Comorbidity was measured with the Charlson score. After adjusting for comorbidity, age, stage and grade of tumor, race, income, and time of diagnosis, patients undergoing radical prostatectomy were shown to have lower overall and cancer-specific mortality rates than had men undergoing conservative management or radiation therapy.

Discussion: The urologists were also very enthusiastic about this retrospective study showing a survival advantage for radical prostatectomy over radiation and conservative therapy in men under 76 years of age with clinically localized prostate cancer. There was a word of caution relevant to potential differences between the 2 groups that may have been unrecognized because of a lack of randomization and that may have an impact on survival. This is always a pitfall of a nonrandomized study. Results of a randomized study of radiation therapy versus surgery, with sufficient follow-up, will not be available for decades. In the absence of these studies, well-designed retrospective comparative studies provide important insights related to treatment selection.

Pelvic Lymphadenectomy for Radical Prostatectomy

Urs Studer, MD, of the University of Berne, Switzerland, discussed the role of a meticulous pelvic lymph node dissection in the prostates of men undergoing radical prostatectomy for clinically localized prostate cancer. A meticulous pelvic lymph node dissection along the external ileac vein, in the obturator fossa, and along the hypogastric artery was performed in 333 men undergoing radical prostatectomy. A median of 21 lymph nodes were removed. Of the 333 men, 77 (23%) were found to have positive nodes; of these, 45 had positive nodes along the hypogastric vessels. These positive hypogastric nodes were the only site of nodal disease in 15 (19.5%) of the 77. Of 120 patients who had a preoperative serum PSA level of less than 10 ng/mL and a Gleason score of less than 7, 8 (7%) had positive nodes. Dr Studer concluded that dissection along the hypogastric artery is important for accurate staging.

Discussion: Studies examining the nodal drainage of the prostate have shown that the obturator nodes are not the exclusive first echelon for lymph node drainage. It is, therefore, not surprising that the hypogastric nodes may be the only site of positive metastases. The fundamental question is whether the more extended lymphadenectomy improves survival. It is controversial whether the more extensive lymphadenectomy increases morbidity and whether it spares a small subset of men from radical prostatectomy.

Bladder Cancer

Richard E. Hautmann, MD, of the University of Ulm, Germany, presented a

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quired multiple shunt placements because of malfunction or migration of the shunt. Before delivery, there was a fetal demise of 43% (6/14). One pregnancy was electively terminated because of significant pulmonary hypoplasia, and the remaining deaths were caused by prematurity with postnatal respiratory failure. Long-term follow-up has shown that 5 (63%) of the 8 living patients have chronic renal insufficiency (mean serum creatinine level was 2.5 mg/dL in infants 6 months of age). Two patients have required renal transplantation. Five of the 8 living patients underwent urinary diversion (vesicostomy or cutaneous ureterostomy) and/or augmentation cystoplasty.

Although some institutions are enthusiastic about fetal intervention, there is a fetal demise rate of 43% following fetal intervention for posterior urethral valves. It appears that intervention does not alter the outcome of renal failure, despite "favorable" fetal renal function. The investigators suggest that when counseling families, one must emphasize that intervention may assist in keeping the fetus viable to term, but will most likely not prevent the long-term sequelae of severe renal dysplasia associated with posterior urethral valves. ■

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study of 99 women with transitional cell carcinoma of the bladder who underwent orthotopic urinary diversion with an ileal neobladder. Women were not candidates for the orthotopic neobladder if the tumor was located at the bladder neck or trigone. No recurrences have been noted in the urethra. The proportion of women in whom recurrences developed seems to be greater than in the male cohort. The increased recurrence rates are thought to be caused by the disease rather than the surgical approach.

Discussion: The discussants validated the role of a neobladder in women with bladder cancer. ■